

# Air Quality Permitting Statement of Basis

September 23, 2004

Tier II Operating Permit No. T2-030029

Sinclair Oil Corporation, Boise

Facility ID No. 001-00112

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Final

# **Table of Contents**

AC	RONYMS, UNITS, AND CHEMICAL NOMENCLATURES	3
	PURPOSE	
	FACILITY DESCRIPTION	
	FACILTY / AREA CLASSIFICATION	
	APPLICATION SCOPE	
	PERMIT ANALYSIS	
	PERMIT CONDITIONS	
	PUBLIC COMMENT	
8.	RECOMMENDATION	. 7
API	PENDIX B	1
SCC	PPE OF PERMITTING ACTION	l <b>4</b>
APF	PENDIX C – RESPONSE TO PUBLIC COMMENTS	3

## Acronyms, Units, and Chemical Nomenclatures

AFS AIRS Facility Subsystem

AIRS Aerometric Information Retrieval System

AQCR Air Quality Control Region

CFR Code of Federal Regulations

CO carbon monoxide

DEQ Department of Environmental Quality

EPA U.S. Environmental Protection Agency

HAPs hazardous air pollutants

IDAPA a numbering designation for all administrative rules in Idaho promulgated in accordance with

the Idaho Administrative Procedures Act

lb/hr pound per hour

NO<sub>2</sub> nitrogen dioxide

NSPS New Source Performance Standards

PM particulate matter

PM<sub>10</sub> particulate matter with an aerodynamic diameter less than or equal to a nominal 10

micrometers

PSD Prevention of Significant Deterioration

PTC permit to construct

Rules Rules for the Control of Air Pollution in Idaho

SIC Standard Industrial Classification

SIP State Implementation Plan

SM synthetic minor SO<sub>2</sub> sulfur dioxide

TAPs toxic air pollutants

T/yr tons per year

UTM Universal Transverse Mercator

VOC volatile organic compound

#### 1. PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01.200 through 228 and 400 through 406, Rules for the Control of Air Pollution in Idaho.

#### 2. FACILITY DESCRIPTION

Sinclair Oil Corporation's Boise Products Terminal (Sinclair) distributes petroleum products received through the Chevron supply pipeline, which originates in Salt Lake City, Utah. Petroleum products consisting of various grades of gasoline and distillate fuel oil are temporarily stored in tanks prior to transfer to mobile carrier tanks (distillate fuel only), or sent back into the pipeline for transportation to additional tank farms (gasoline and distillate fuel oil).

The petroleum products are stored in any of eight existing storage tanks. Gasoline is allowed to be stored in five of these tanks, and distillate fuel oil can be stored in any of the eight existing tanks. A prover tank is used for flow calibration, and a transmix tank is used to store "slop oil." Distillate fuel oil products are transferred from the tanks to the carrier by the loading rack system, prior to offsite transport and delivery. Gasoline products are sent back to the pipeline for offsite transportation.

The carrier is situated in one of the two loading rack bays where one or more loading rack arms are inserted through the fill hatch (es) in the top of the carrier tank. Only distillate fuel oil product is transferred from the storage tank to the loading rack system, which delivers the product to the carrier tank. Additives may be blended with the distillate fuel oil product during carrier tank loading.

#### 3. FACILTY / AREA CLASSIFICATION

This facility is not a major facility as defined by IDAPA 58.01.01.205 because its potential to emit is limited to less than all major source thresholds. The facility is not a designated facility as defined by IDAPA 58.01.01.006.27. The facility is not subject to federal NSPS, NESHAP, or MACT requirements. The SIC code defining the facility is 5171, and the AIRS facility classification is "SM" for VOC and HAP emissions.

This facility is located within AQCR 64 and UTM zone 11. The facility is located in Ada County which is designated as unclassifiable for all criteria pollutants.

The AIRS information provided in Appendix B defines the classification for each regulated air pollutant at Sinclair. This required information is entered into the EPA AIRS database.

#### 4. APPLICATION SCOPE

On May 27, 2003, DEQ received a permit application to revise Tier II Operating Permit and Permit to Construct No. 001-00112, issued November 18, 2002. The revision to the permit is in response to typographical errors discovered during the March 4, 2003, permit hand-off meeting. In addition, Sinclair requests that DEQ revise the allowable HAP emissions limit for the SVE system based on data collected from the system stack in February 2003.

## 4.1 Application Chronology

May 27, 2003 DEQ receives Tier II operating permit application.

December 1, 2003 DEQ requests application fee.

December 30, 2003 DEQ receives application fee.

January 27, 2004 DEQ determines application complete.

March 9, 2004 DEQ provides proposed permit for public comment.

March 18 through

April 16, 2004 Public comment period.

September 15, 2004 Regional Office review and comment provided.

#### 5. PERMIT ANALYSIS

This section of the Statement of Basis describes the regulatory requirements for this PTC action.

#### 5.1 Emissions Inventory

The only change in emissions due to this permitting action is an increase in potential HAP emissions from the SVE system. The change is based on emissions data collected in February 2003, which shows that the actual HAP to VOC (HAP/VOC) vapor weight ratio is higher than originally assumed. In their original permit application for the SVE system, Sinclair estimated HAP emissions by assuming the HAP/VOC vapor weight ratio of gasoline was representative of the SVE system vent composition. The results of the data, however, show that the HAP/VOC vapor weight is higher than assumed. The result of this discovery is that potential emissions may increase. It's important to note that the SVE system has not been modified, and actual emissions have not changed. But, due to the higher HAP/VOC vapor weight ratio, potential HAPs are shown to increase. That increase is presented in Table 1 in the Appendix. The change in emissions is presented in Table 2.

#### 5.2 Modeling

VOC emissions are not increasing as a result of this permitting action. Potential toxic air pollutant (HAPs and/or TAPs) emissions, however, are shown to increase based on the data collected in February 2003, as discussed above. Because the data shows potential increases, the potential increases had to be evaluated to assure compliance with IDAPA 58.01.01.585 and 586 (only TAPs are regulated under this rule). Of the TAPs emitted, benzene is the only TAP shown to exceed its net screening emissions level (EL); however, the increase is less than the permit limit. Typically, modeling is required when the EL is exceeded. In this case, the increase is less than the permit limit; therefore, modeling was not required. For reference, the increase in benzene emissions is approximately 0.14 lb/hr, the permit limit is 0.17 lb/hr (uncontrolled emissions), and actual benzene emissions are 0.004 lb/hr, which is approximately 2% of the limit. The permit limit was established through modeling that took into account all nearby sensitive receptors. So long as the benzene emissions rate is not exceeded, human health and environment are protected. Compliance with the benzene emissions limit is demonstrated by requiring monthly testing using EPA Reference Method 18, Measurement of Gaseous Organic Compound Emissions by Gas Chromatography. If the measured benzene emissions are greater than or equal to 0.17 lb/hr, Sinclair is required to cease operating the SVE system immediately and install a thermal oxidizer to control emissions.

### 5.3 Regulatory Review

This section describes the regulatory analysis of the applicable air quality rules with respect to this permit.

IDAPA 58.01.01.201 ...... Permit to Construct Required

This permitting action revises typographical errors and revises allowable HAP emissions limit to more accurately reflect actual operations.

IDAPA 58.01.01.205 ...... Prevention of Significant Deterioration (PSD)

Sinclair's Boise Products Terminal is a minor facility. Therefore, PSD requirements do not apply.

IDAPA 58.01.01.210...... Demonstration of Preconstruction Compliance with Toxic Standards

Sinclair has demonstrated preconstruction approval for toxic air pollutant standards.

IDAPA 58.01.01.401 ...... Tier II Operating Permit

This permit authorizes the use of a potential to emit limitation to exempt the facility from Tier I permitting requirements.

IDAPA 58.01.01.404 ...... Procedure for Issuing Permit

The procedures for revision, issuance and approval apply to this permit.

40 CFR 60...... New Source Performance Standards (NSPS)

NSPS standards do not apply.

#### 5.4 Fee Review

The increase in emissions is estimated to be 8.66 T/yr. The corresponding Tier II operating permit processing fee is \$2,500 in accordance with IDAPA 58.01.01.407.01.

**Table 9.1 EMISSIONS INVENTORY** 

	Emissions II	rventery	
Polistant	Annual Emissions Increase (T/yr)	Annual Emissions Reduction (T/yr)	Anneal Emissions Change (T/yr)
NO <sub>x</sub>	0.0	0	0.0
SO <sub>2</sub>	0.0	0	0.0
co	0.0	0	0.0
PM <sub>10</sub>	0.0	0	0.0
VOC	0	0	0.0
TAPS/HAPS	8.66	0	8.66
Total:	8.66	0	8.66
Fee Due			······································

Sinclair's Boise Products Terminal is not a major facility as defined in IDAPA 58.01.01.008.10 and is therefore not subject to Tier I operating permit registration and registration fees in accordance with IDAPA 58.01.01.387.

#### PERMIT CONDITIONS

This section summarizes the changes in the permit conditions in this permit.

#### Permit Condition 2.4

The first sentence of this permit condition requires quarterly facility-wide inspection of potential sources of fugitive emissions. The third sentence of the permit condition references weekly fugitive emission inspections. The permit condition has been changed to reflect monthly fugitive emissions inspections, as requested by Sinclair's Boise Products Terminal.

#### **Permit Condition 2.8**

The first sentence of this permit condition requires quarterly facility-wide inspection of potential sources of visible emissions. The fourth sentence of the permit condition references monthly visible emissions inspections. The permit condition has been changed to reflect quarterly visible emissions inspections.

#### **Permit Condition 5.5**

The permit condition has been revised, at the request of the facility, to allow 60 days for re-installing and operating the thermal oxidizer in the event of a benzene exceedence. The additional time is necessary to relocate the thermal oxidizer, or install an equivalent at the facility.

#### **Permit Condition 5.6**

The permit condition has been revised to require Method 18 testing for VOCs and HAPs in lieu of LEL testing.

#### 7. PUBLIC COMMENT

An opportunity for public comment period on the PTC application was provided, in accordance with IDAPA 58.01.01.209.01.c. Comments were received and DEQ's response to those comments is presented in Appendix C.

#### 8. RECOMMENDATION

Based on review of application materials and all applicable state and federal rules and regulations, staff recommends that DEQ issue final Tier II Operating Permit and Permit to Construct No. T2-030029 to Sinclair Oil Corporation's Boise Products Terminal.

ABC/sd Permit No. T2-030029

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# APPENDIX A

Sinclair Oil Corp., Boise Products Terminal Soil Vapor Extraction System Emissions

# Sinclair Oil Corp., Boise Products Terminal Tier 2 Renewal Rev. 4, May 22, 2003 Soil Vapor Extraction System Emissions EUI/13

#### Basis:

SVE vent flowrate Corrected flowrate (altitude) VOC (as hexane) VOC flowrate MW	400 361.5 1200 0.434 86.2		(at 13.28 psia, 60 F) (assumed average \	/OC concentration)			
VOC =	0.434 scf	1	b mole	86.2 lb	60 min		5.91 <u>lb</u>
	min	379.6	scf	lb mole	hr	-	hr
VOC =	5.91 lb	8760	hr	ton	=	25.9	ton
	hr		vr	2000 lb			Vf

Calculate HAP emissions:

Total HAP based upon gasoline vapor speciation

Total VOC emission rate

25.88 TPY

TABLE 1

	Component	Vapor Mass Fraction	Emission Rate (TPY)	HAP Emission Rate (TPY)
1	Benzene	0.0288	0.7446	0.7446
2	Hexane	0.0611	1.5823	1.5823
3	Xylene-o	0.0022	0.0569	0.0569
4	Xylene-m	0.0088	0.2278	0.2278
- 5	Xylene-p (inc. with o & m)	0.0000	0.0000	0.0000
6	Toluene	0.0079	0.2040	0.2040
7	Ethylbenzene	0.0045	0.1170	0.1170
8	Naphthalene	0.0015	0.0400	0.0400
8	Trimethylpentane (2,2,4)	0.2454	6.3533	6.3533
10	Curnene	0.0017	0.0441	0.0441
11	Gasoline(RVP10)	0.6380	16.5149	
	SUBTOTAL	1.00	25.88	9.37

SBG/sbg 5/22/03

TABLE 2
Sinclair Oil Corp., Boise Products Terminal
Project Number: T2-030029

TAP Calculations and IDAPA 58.01.01.585 and 586 Review

**Total Emission Rate** 

5.913193 lb/hr

	Updated Vapor Mass Fraction	Old Vapor Mass Fraction	Updated Maximum TAP Emission Rate (lb/hr)	OLD TAP Emission Rate (lb/hr)	EL (lb/hr)	Change in Emissions (lb/hr)
Benzene	0.0288	0.0056	0.1703	0.0331	8.00E-04	0.14
Hexane	0.0611	0.0089	0.36	0.0526	12	0.31
Xylene-o	0.0022	0.0010	0.01	0.0059		0.01
Xylene-m	0.0088	0.0015	0.05	0.0089	29	0.04
Xylene-p (inc. with o- & m-)	O	0.0000	0.00	0.0000	ŀ	0.00
Toluene	0.0079	0.0079	0.05	0.0467	25	0.00
Ethylbenzene	0.0045	0.0005	0.03	0.0030	29	0.02
Napthalene	0.0015	0.0000	0.01	0.0000	3.33	0.01
Trimethylpentane (2,2,4)	0.2454	0.0023	1,45	0.0136	23.3	1.44
Cumene	0.0017	0.0000	0.01	0.0000	16.3	0.01

Please note that while Benzene emissions appear to have increase. The facility was originally permitted at compliance

# APPENDIX B

Sinclair Oil Corp., Boise Products Terminal AIRS/AFS Facility-Wide Classification Data Entry Form

#### AIRS/AFS FACILITY-WIDE CLASSIFICATION DATA ENTRY FORM

			inste Levian		
SO <sub>2</sub>	В				U
NO <sub>x</sub>	В				U
со	В				N
PM <sub>10</sub>	В				Ü
PT (Particulate)	В				Ŭ
voc	SM	ï	"		U
THAP (Total HAPs)	SM				U
	_		APPL	e Aret	

#### AIRS/AFS Classification Codes:

- = Actual or potential emissions of a pollutant are above the applicable major source threshold. For NESHAP only, class "A" is applied to each
- pollutant, which is below the 10 T/yr threshold, but which contributes to a plant total in excess of 25 T/yr of all NESHAP pollutants.

  SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.
- = Actual and potential emissions below all applicable major source thresholds.
- Class is unknown.
- ND = Major source thresholds are not defined (e.g., radionuclides).

# APPENDIX C

Sinclair Oil Corp., Boise Products Terminal Response to Public Comments

# STATE OF IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY RESPONSE TO COMMENTS ON TIER II OPERATING PERMIT FOR SINCLAIR OIL CORPORATION, BOISE, IDAHO

#### SCOPE OF PERMITTING ACTION

This proposed Tier II operating permit and permit to construct (proposed permit) corrects inconsistencies in four permit conditions (Permit Conditions 2.4, 2.8, 5.5, and 5.8.1) discovered during the March 4, 2003 permit handoff of Tier II Operating Permit and Permit to Construct No. 001-00112. In addition, the proposed permit revises the potential HAP emissions from the SVE system. The potential HAP emissions are shown to increase based on data collected from the SVE system stack in February 2003. Actual emissions are not increasing because the facility has not been modified. Please refer to the statement of basis developed for this proposed permit for specific details regarding the permit revisions.

#### Comments Received after Close of Public Comment Period

Comment 1:

The proposed Tier II Operating Permit and Permit to Construct allows for the increase in emissions of HAPs and TAPs without any express consideration or analysis of health impacts to sensitive receptors.

Response:

The increase in toxic air pollutant emissions from the SVE system was evaluated in accordance with the requirements of IDAPA 58.01.01.210, Demonstration of Preconstruction Compliance With Toxic Standards. The increases in toxic emissions are less than all respective net screening emissions levels, except for benzene emissions. However, the increase in benzene emissions is less than the permit limit. The permit limit was established when the SVE system was originally permitted, and that analysis took into consideration nearby sensitive receptors. It's important to realize that there is not an increase in the actual emissions as a result of this permitting action. The SVE system has not been modified since originally permitted. The increase in potential HAP emissions is due to an adjustment of the HAP/VOC vapor weight ratio as discovered in the data collected in February 2003. Sinclair's assumption made initially underestimated the HAP/VOC vapor weight ratio. The revised allowable HAP emissions reflect actual operations. The increase in HAP emissions does not affect the minor source status of the facility with regard to HAP emissions.

Comment 2:

The nearby Sinclair, AMACO, Chevron, United, and Baird Oil facilities (Boise Tank Farm) should be treated as a single facility that should be permitted as a major facility.

Response:

A "facility" is defined by IDAPA 58.01.01.006.37 as the following: All of the pollutant-emitting activities which belong to the same industrial grouping, are located on one (1) or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control). Pollutant-emitting activities shall be considered as part of the same industrial grouping if they belong to the same Major Group (i.e. which have the same two-digit code) as described in the Standard Industrial Classification Manual. It is true that Sinclair, AMACO, Chevron, United, and Baird Oil are located on contiguous or adjacent properties and belong to the same industrial grouping. However, Sinclair, AMACO, Chevron, United, and Baird Oil are not under common control of the same person or persons. Furthermore, these facilities do not support the operation of each other (i.e. the facilities are not support facilities). Under

current regulations, Sinclair, AMACO, Chevron, United, and Baird Oil cannot be aggregated as one single facility because they are separate, independent facilities by definition.

Comment 3:

The proposed permit should be a Tier I operating permit that accounts for cumulative air toxic pollutant impacts.

Response:

Sinclair is not a Tier I source (see IDAPA 58.01.01.006.102); therefore, it is not subject to Tier I operating permit requirements.

Comment 4:

Does the permitting modeling analysis account for all of the benzene emission from all the tanks at the facility?

Response:

This permitting action does not increase toxic emissions of any of the facility's storage tanks. Modeling was conducted when the permit limits for the tanks were established.

Comment 5:

What are the total emissions from all sources at the nearby Sinclair, AMACO, Chevron, United, and Baird Oil facilities (Boise Tank Farm)?

Response:

This comment is beyond the scope of the proposed permit, see response to Comment 2.

Comment 6:

How were the emission limits for the tanks determined.

Response:

See response to Comment 4.

Comment 7:

Permit terms and conditions should be imposed on the sources in the Boise Tank farm to reduce air emissions with the goal of reducing air emissions to zero.

Response:

DEQ is charged by the Environmental Protection and Health Act, Idaho Code § 39-10, to operate a program to issue air pollution permits in accordance with the Rules for the Control of Air Pollution in Idaho. The proposed permit for Sinclair meets the requirements of the Rules.

Comment 8:

Condition 5.2 should be clarified to say that the thermal oxidizer is used online on an as needed basis, to maintain emission rates below the emission limits in the permit.

Response:

DEQs analysis shows that the uncontrolled benzene emissions rate is less than 0.17 lb/hr as determined through monthly measurements. Historical measurements show that actual benzene emissions are approximately 0.004 lb/hr. However, if any measurement exceeds 0.17 lb/hr, Sinclair is required to cease operation of the SVE system. Benzene cannot be emitting with the SVE system shut down. In addition to requiring operation of the SVE system to cease, the permit requires Sinclair to install and operate a thermal oxidizer within 60 days of a measured benzene exceedance. When the thermal oxidizer is required, benzene emissions will be reduced below the allowable limit.

Comment 9:

"Condition 5.7 should be revised to say the thermal oxidizer AND 'the SVE system' must be shut off if the oxidizer temperature falls below 1400° F."

Response:

The permit has been changed as requested.

Comment 10:

Procedures for comparing LEL-measured emission rate to Method 18 is inappropriate, and that the permittee should obtain DEQ approval for an alternative monitoring method.

Response:

The permit has been changed as requested.

Comment 11:

In relation to Permit Conditions 5.8.1 and 5.8.2, "It would not appear that an LEL meter would not provide the level of precision and accuracy needed to measure VOCs and is not appropriate as a monitoring device in which decisions are being made regarding treatment of vapors. An Organic Vapor Monitor would be more

appropriate."

Response:

The permit now requires monthly testing of the SVE system exhaust stack for VOC and

HAP emissions using Method 18.

Comment 12:

In relation to Permit Conditions 5.8.1 and 5.8.2, "...more frequent monitoring than once a month seems appropriate given the sensitive receptors in the areas...more frequent sampling and measuring using Method 18 would be appropriate."

Response:

Monthly monitoring is adequate because the actual benzene emissions rate is approximately 2% of the permit limit (0.004 lb/hr versus 0.17 lb/hr). Should monthly monitoring show a drastic increase in benzene emissions, DEQ will revisit the monitoring frequency.

Comment 13:

Typographical error in the Recommendation section on p. 7 of IDEQ's Statement of Basis. Recommendation should read that DEQ issue a Tier II operating permit, and not a Tier I.

Response:

The permit has been changed as requested.